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U.S. DEPARTMENT OF COMMERCE PATENT AND TRADEMARK OFFICE

ATTORNEY DOCKET NO.

XI/P6407US0

**TRANSMITTAL LETTER TO THE UNITED STATES
DESIGNATED/ELECTED OFFICE (DO/EO/US)
CONCERNING A FILING UNDER 35 U.S.C. 371**

U.S. APPLICATION NO.

09/341299

INTERNATIONAL APPLICATION NO.
PCT/AU98/00010INTERNATIONAL FILING DATE
09 JANUARY 1998PRIORITY DATE CLAIMED
09 JANUARY 1997

TITLE OF INVENTION: INSECT REPELLENT SUBSTRATE FOR HEADWEAR

APPLICANT(S) FOR DO/EO/US: ROBINSON, Veronica

Applicant herewith submits to the US Designated/Elected Office (DO/EO/US) the following items and other information:

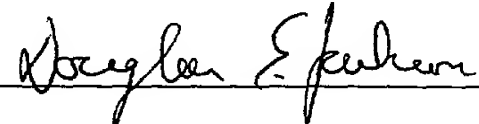
- ☒ 1. This is a **FIRST** submission of items concerning a filing under 35 U.S.C. 371.
- ☐ 2. This is a **SECOND** or **SUBSEQUENT** submission of items concerning a filing under 35 USC 371.
- ☒ 3. This express request to begin national examination procedures (35 USC 371(f)) at any time rather than delay examination until the expiration of the applicable time limit set in 35 USC 371(b) and PCT Art. 22 and 39(1).
- ☒ 4. A proper Demand for International Preliminary Examination was made by the 19th month from the earliest claimed priority date.
- ☒ 5. A **copy** of the International Application as filed (35 U.S.C. 371 (c)(2))
- ☐ a. is transmitted herewith (required only if not transmitted by the International Bureau).
- ☒ b. has been transmitted by the International Bureau.
- ☐ c. is not required, as the application was filed in the United States Receiving Office (RO/US).
- ☐ 6. A **translation** of the International Application into English (35 U.S.C. 371(c)(2)).
- ☒ 7. Amendments to the claims of the International Appln. under PCT Article 19 (35 USC 371 (c)(3))
- ☐ a. are transmitted herewith (required only if not transmitted by the International Bureau).
- ☐ b. have been transmitted by the International Bureau.
- ☐ c. have not been made; however, the time limit for making such amendments had NOT expired.
- ☒ d. have not been made and will not be made.
- ☐ 8. A translation of the amendments to the claims under PCT Article 19 (35 U.S.C. 371(c)(3)).
- ☐ 9. An **oath** or declaration of the inventor(s) (35 U.S.C. 371(c)(4)).
- ☐ 10. A translation of the annexes to the International Preliminary Examination Report under PCT Article 36 (35 U.S.C. 371(c)(5)).

Items 11. to 16. below concern document(s) or information included:

- ☐ 11. An **Information Disclosure Statement** under 37 C.F.R. 1.97 and 1.98.
- ☐ 12. An **Assignment** document for recording. A separate cover sheet in compliance with 37 CFR 3.28 and 3.31 is included.
- ☐ 13. A **First preliminary amendment**.
- ☐ A Second or subsequent preliminary amendment.
- ☐ 14. A substitute specification.
- ☐ 15. A change of power of attorney and/or address letter.
- ☐ 16. Other items or information:
- ☐ **Small Entity Statement**
- ☐
- ☐ A copy of the Notification of Missing Requirements under 35 U.S.C. 371.
- ☐ In the event that a petition for extension of time is required to be submitted herewith, and in the event that a separate petition does not accompany this response, applicant hereby petitions under 37 CFR 1.136(a) for an extension of time of as many months as are required to render this submission timely. Any fee is authorized in 17(c).

Date: 08 July 1999

09/341299

INTERNATIONAL APPLICATION NO. PCT/AU98/00010		INTERNATIONAL FILING DATE 09 JANUARY 1998		PRIORITY DATE CLAIMED 09 JANUARY 1997	
<input checked="" type="checkbox"/> 17. The following fees are submitted: <input checked="" type="checkbox"/> Basic National Fee (37 CFR 1.492 (a) (1)-(5):					
<input type="checkbox"/> Search Report has been prepared by the EPO or JPO \$ 840 <input type="checkbox"/> International preliminary examination fee paid to USPTO \$ 670 <input type="checkbox"/> No Int'l Prelim. Ex. fee paid to USPTO but Int'l Search fee paid to USPTO \$ 760 <input checked="" type="checkbox"/> Neither Int'l Prelim. Exam. fee nor Int'l Search fee paid to USPTO \$ 970 <input type="checkbox"/> Int'l Prelim. Ex. fee paid to USPTO & all claims satisfied PCT Art. 33(1)-(4) \$ 96					
ENTER APPROPRIATE BASIC FEE AMOUNT =				\$970.00	
<input type="checkbox"/> Surcharge of \$130 for furnishing the oath or declaration later than from the earliest claimed priority date (37 CFR 1.492(e)).				<input type="checkbox"/> 20 mos. <input type="checkbox"/> 30 mos. +	\$
CLAIMS	NUMBER FILED	NUMBER EXTRA	RATE		
Total Claims	27 - 20 =	7	X \$18 =	\$ 126.00	
Independent Claims	02 - 03 =		X \$78 =	\$	
<input type="checkbox"/> Multiple Dependent Claim(s) (if applicable)			+ \$260 =	\$	
TOTAL OF ABOVE CALCULATIONS =				\$ 1096.00	
<input type="checkbox"/> Reduction of 1/2 for filing by small entity, if applicable. Small Entity Statement must also be filed.				\$	
SUBTOTAL =				\$ 1096.00	
<input type="checkbox"/> Processing fee of \$130 for furnishing the English translation later than from the earliest claimed priority date (37 CFR 1.492(f)).				<input type="checkbox"/> 20 mos. <input type="checkbox"/> 30 mos. +	\$
TOTAL NATIONAL FEE =				\$ 1096.00	
<input type="checkbox"/> Fee for recording the enclosed assignment, accompanied by a cover sheet - \$40 per property				\$	
TOTAL FEES ENCLOSED =				\$ 1096.00	
Amount to be				Refunded	\$
				Charged	\$
<input checked="" type="checkbox"/> a. A check in the amount of \$1096.00 to cover the above fees is enclosed. <input type="checkbox"/> b. Please charge my Deposit Account No. 12-0555 in the amount of \$ to cover the above fees. <input checked="" type="checkbox"/> c. The Commissioner is hereby authorized to charge any additional fees required or credit overpayment to Deposit Account No. 12-0555.					
<i>Note: Where an appropriate time limit under 37 CFR 1.494 or 1.495 has not been met, a petition to revive (37 CFR 1.137(a) or (b)) must be filed and granted to restore the application to pending status.</i>					
Address correspondence to: THOMAS P. SARRO			SIGNATURE: 		
At the address (below) of CUSTOMER NO. 000881.			NAME: Douglas E. Jackson		
LARSON & TAYLOR 1199 NORTH FAIRFAX ST. SUITE 900 ALEXANDRIA, VA 22314			REG. NO.: 28518		
			PHONE NO.: 703-739-4900		
			Date: 08 July 1999		

09/341299-08 JUL 1999

STATEMENT CLAIMING SMALL ENTITY STATUS
(37 CFR 1.9(f) & 1.27(c)) – SMALL BUSINESS CONCERN

Docket No.: XI/P06407USO

Applicant or Patentee: Veronica Susan ROBINSON
 Application or Patent No.:
 Filed or Issued: July 8, 1999
 Title: INSECT REPELLENT SUBSTRATE FOR HEADWEAR

I hereby state that I am:

- ☐ The owner of the small business concern identified below:
☐ An official of the small business concern empowered to act on behalf of the concern identified below:

Name of the Small Business Concern: LICEBUSTERS INTERNATIONAL R & D PTY. LTD.
 Address of Small Business Concern: 39 Louise Street, Nedlands WA 6009, Australia

I hereby state that the above-identified small business concern qualifies as a small business concern as defined in 13 CFR Part 121 for purposes of paying reduced fees to the U.S. Patent and Trademark Office, in that the number of employees of the concern, including the those of its affiliates, does not exceed 500 persons. For purposes of this statement, (1) the number of employees of the business concern is the average over the previous fiscal year of the concern of the persons employed on a full-time, part-time or temporary basis during each of the pay periods of the fiscal year, and (2) concerns are affiliates of each other when either, directly or indirectly, one concern controls or has the power to control the other, or a third party or parties controls or has the power to control both.

I hereby state that rights under contract or law have been conveyed to and remain with the small business concern identified above with regard to the invention described in:

- ☐ The specification filed herewith with title as listed above.
☒ The application identified above.
☐ The patent identified above.

If the rights held by the above-identified small business concern are not exclusive, each individual, concern or organization having rights in the invention must file separate verified statements stating to their status as small entities, and no rights to the invention are held by any person, other than the inventor, who would not qualify as an independent inventor under 37 CFR 1.9(c) if that person made the invention, or by any concern which would not qualify as a small business concern under 37 CFR 1.9(d), or a nonprofit organization under 37 CFR 1.9(e).

Each person, concern or organization having any rights in the invention is identified below:

- ☒ No such person, concern, or organization exists.
☐ Each such person, concern or organization is listed below.

Separate statements are required from each above named person, concern or organization having rights to the invention stating their status as small entities. (37 CFR 1.27)

I acknowledge the duty to file, in this application or patent, notification of any change in status resulting in loss of entitlement to small entity status prior to paying, or at the time of paying, the earliest of the issue fee or any maintenance fee due after the date on which status as small entity is no longer appropriate. (37 CFR 1.28(b))

NAME of Person Signing: Veronica S. Robinson
 TITLE of Person if other than Owner: Director
 ADDRESS of Person Signing: 14 Parakeela Grove, Maddington WA 6109, Australia

SIGNATURE: 

DATE: 05 08 99

INSECT REPELLENT SUBSTRATE FOR HEADWEARFIELD OF THE INVENTION

5 The present invention relates to an insect repellent substrate for repelling lice and the like insects, and relates particularly, though not exclusively, to headwear having a strip of said insect repellent substrate provided in connection therewith.

BACKGROUND TO THE INVENTION

10 Infestations of headlice and other parasitic insects are a perennial problem, particularly in schools where the lice are easily transmitted from child to child. Up to the present time there has been very little that one can do to prevent a child from being infected with headlice. Regular inspection to identify nits, which are the eggs of lice, is the only way
15 to detect an infestation. Treatment includes combing the hair with a fine-toothed comb and/or washing the hair with a special shampoo which contains chemical substances designed to kill the lice and nits.

20 However, the shampoos that are currently available to treat headlice typically contain harsh synthetic chemicals such as permethrrium, piperonyl butoxide and organophosphates which have been known to cause skin irritation. In the United Kingdom across the counter sales of shampoos containing organophosphates have recently been banned because of health
25 concerns.

A further disadvantage with shampoos is that they only treat the hair at the time of use. They do not prevent the child from being re-infected when he/she returns to school.

SUMMARY OF THE INVENTION

30 The present invention was developed with a view to providing a lice repellent substrate suitable for headwear that can kill any lice present in the hair as well as preventing any further infestation of headlice. Although the present

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invention will be described primarily in relation to the treatment and prevention of lice infestation, it is to be understood that it also has application to the treatment and/or prevention of infestations of other parasitic insects such as fleas. Furthermore, although the insect repellent substrate is particularly suitable for headwear it may also have other applications such as, for example, under a pillow at night.

According to one aspect of the present invention there is provided an insect repellent substrate for repelling lice and the like insects and for attachment to a garment, the substrate comprising:

a strip of fabric base material impregnated with a repellent carrier composition and being adapted to attach to the garment in a manner that will ensure continuous contact of the insect repellent substrate with the wearer's hair or body, the carrier composition including a mixture of wax and an insect repellent whereby, in use, the wearer's body heat causes the carrier composition to soften to provide a controlled release of the insect repellent from the fabric base material.

Preferably the insect repellent is a naturally occurring compound. More preferably the insect repellent includes an extract from the pyrethrum flower. Most preferably the insect repellent is pyrethrum oil. Advantageously the carrier composition further includes one or more scented or aromatic oils. More preferably the carrier composition includes citronella oil and rosemary oil, which are also mild insect repellents. Preferably the carrier composition further includes neem oil, a naturally occurring insect repellent.

Typically the wax is a paraffin wax. Alternatively, the wax is beeswax obtained from honeycomb of the bee.

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Preferably the carrier composition includes between 0.5% to 6.0% by volume of pyrethrum. Preferably the carrier composition includes between 0.5% to 4.0% citronella oil. Preferably the carrier composition includes between 0.5% to 5.0% rosemary oil. Preferably the carrier composition includes between 3.0% to 9.0% neem oil. Preferably the carrier composition also includes between 0.5% to 6.0% eucalyptus oil.

Most preferably the carrier composition includes 30 mls of pyrethrum (50% w/w), 20 mls of citronella, 25 mls of rosemary and 45 mls of neem oil to every one litre of wax. Preferably the fabric base material is a felt material; most preferably a polyester/cotton blend felt material.

According to another aspect of the present invention there is provided a method of manufacturing an insect repellent substrate for repelling lice and the like insects for attachment to a garment, the method comprising the steps of:

producing a repellent carrier composition by:

heating a wax to a liquid state; and,

mixing an insect repellent with the liquid wax;

dipping a strip of fabric base material into the carrier composition whilst still in the liquid state for a sufficient length of time to allow the base material to absorb some of the carrier composition;

allowing the impregnated strip of base material to cool so that the carrier composition solidifies on the base

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material to form said insect repellent substrate; and,

attaching the substrate to the garment whereby, in use, the wearer's body heat causes the carrier composition to soften to provide a controlled release of the insect repellent from the fabric base material.

Preferably the insect repellent is a naturally occurring compound. More preferably the insect repellent includes an extract of the pyrethrum flower. Most preferably the insect repellent includes pyrethrum oil.

10 Preferably the step of producing the repellent carrier composition further includes mixing one or more scented or aromatic oils with the liquid wax. Most preferably the scented oils include citronella oil and rosemary oil, which are also mild insect repellents.

15 Preferably the step of producing the carrier composition further includes mixing neem oil with the liquid wax.

Typically the garment is an item of headwear such as, for example, a headband, hat or a cap. Alternatively the garment is an animal garment, such as, for example, a flea collar or a coat.

BRIEF DESCRIPTION OF THE DRAWINGS

In order to facilitate a better understanding of the nature of the invention a preferred embodiment of the insect repellent substrate will now be described in detail, by way of example only, with reference to the accompanying drawings, in which:

Figure 1 illustrates a typical piece of insect repellent substrate in accordance with the invention;

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Figure 2 illustrates a headband having a strip of the insect repellent substrate of Figure 1 attached thereto;

Figure 3 illustrates a strip of insect repellent substrate in accordance with the invention having a strip of hook and loop fastener material fixed thereto; and,

Figure 4 illustrates a baseball cap having several strips of the insect repellent substrate illustrated in Figure 3 attached thereto.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENT

10 A preferred embodiment of the insect repellent substrate 10 as shown in Figure 1 comprises a piece of fabric base material 12 impregnated with a repellent carrier composition 14. Any suitable fabric base material may be employed. In the preferred embodiment the fabric base material is a felt material. A felt material made from a cotton and polyester blend was found to be most suitable. The fabric base material 12 should preferably be sufficiently absorbent to absorb the carrier composition 14 in a liquid state whilst retaining a degree of flexibility when impregnated with the carrier composition 14 in its solid state.

The repellent carrier composition 14 includes a mixture of wax and an insect repellent. In this embodiment the wax is a paraffin wax, although a naturally occurring wax such as beeswax obtained from honeycomb of the bee may also be used. The wax typically has a melting point of between 60°C to 65°C. The insect repellent employed in the carrier composition is preferably a naturally occurring compound. In the preferred embodiment the insect repellent includes an extract from the pyrethrum flower. Pyrethrins, the active constituent of pyrethrum flowers, are commonly used as a contact insecticide in fly-sprays. Pyrethrins are noted for the very rapid paralysis (knock-down) effect produced on flies, mosquitoes and other insects. Chemically modified

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pyrethrins, such as permethrins, have greater persistence and other commercially desirable properties. In the present invention, it is preferred to use the naturally occurring pyrethrum pale extract from pyrethrum flowers grown in Kenya. Typically, a diluted pyrethrum solution (50% w/w PBK) in an odourless isoparaffin solvent is used. Typically between 0.5% to 6.0% by volume of the pyrethrum oil solution is employed in the repellent carrier composition.

Advantageously the carrier composition 14 also includes one or more scented or aromatic oils. The addition of scented or aromatic oils is desirable in order to give the repellent carrier composition a pleasant aroma or scent. In addition, selected naturally occurring scented oils, such as citronella oil, rosemary oil and eucalyptus oil act as mild insect repellents and/or have other medicinal qualities. Thus, for example, rosemary oil is a mild insect repellent and is also thought to help to relieve headaches. Citronella oil also acts as an insect repellent and provides a fresh citrus aroma. It also helps to dry up congestion of the nasal passages. Eucalyptus oil is an antiseptic and eucalyptus vapours act to relieve congestion and breathing difficulties through the nasal passages.

The carrier composition preferably also includes neem oil extracted from the neem tree, which is a long-lasting insect repellent. Through extensive experimentation the inventor has found that the repellent carrier composition should preferably include a mixture of between 0.5% to 4.0% by volume citronella oil, 0.5% to 5.0% by volume rosemary oil and 3.0% to 9.0% neem oil together with 0.5% to 6.0% by volume of pyrethrum. These proportions were found to give the carrier composition sufficient active components to kill any lice or nits present, balanced with the repellent and aromatic properties of the constituents. A carrier composition which includes 30 mls of pyrethrum (50% w/w), 20 mls of citronella, 25 mls of rosemary and 45 mls of neem

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oil to every one litre of wax has been found to be particularly effective.

The wax in the carrier composition 14 provides a controlled release of the insect repellent from the fabric base material 12. In use, the base material 12 may be sewn on the inside of a garment in a manner that will ensure contact with the wearer's hair or body. For example, a strip 16 of the insect repellent substrate may be sewn to the inside of a headband 18 as shown in Figure 2. Strips of the impregnated felt material are cut to various sizes, ranging from 20 cm to 24 cm in length and from 2.5 cm to 5.0 cm in width, are sewn into stretchy cotton fabric to form the headband. Alternatively, strips of the impregnated felt may be sewn onto or adhered to an existing headband. When the headband 18 is worn on the wearer's head the strip 16 of insect repellent substrate will be in contact with the wearer's hair. The body temperature of the wearer will cause the wax in the substrate to soften allowing the active and aromatic constituents of the repellent carrier composition to be slowly released onto the wearer's hair and scalp. The controlled and continuous release of active constituents onto the wearer's hair and scalp not only kills any existing headlice and/or nits but also prevents any further infestation. In use, the strip 16 of insect repellent substrate has been found to provide effective treatment and prevention of headlice for approximately 6 to 8 weeks. After this length of time most of the active constituents of the repellent carrier composition are found to have leached out or evaporated from the fabric base material.

The insect repellent substrate 10 is relatively simple and inexpensive to manufacture. Typically, strips of the felt material are cut to size and dipped in a preheated (to approximately 70°C) wax solution containing the pyrethrum, citronella, rosemary and neem oil in the proportions noted above. The pyrethrum oil, citronella oil, rosemary oil and

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neem oil are simply added to the melted wax and readily mix with the wax in view of their oily composition. The felt strips absorb the wax solution after two or three minutes and then the impregnated felt strips are allowed to cool so that the wax solution solidifies on the felt fabric. After approximately two minutes of cooling the impregnated felt strips are ready to be attached to any suitable garment. The strips of insect repellent substrate may be attached to the garment using any appropriate fastening, for example, by sewing, an adhesive or using a hook and loop fastener system such as Velcro (registered trade mark).

Figure 3 illustrates a strip 20 of the insect repellent substrate having a strip of hook and loop fastener material 22 fixed thereto. One part of the hook and loop fastener is glued to the felt base material 10 and the other part can be attached to a garment by sewing or using a suitable self-adhesive. A baseball cap 24 is illustrated in Figure 4 (shown upside down) having several strips 20 of the insect repellent substrate attached to an inside surface of the cap where they will be in direct contact with the hair and/or scalp of the wearer. Similar strips of the insect repellent substrate can be attached to suitable animal garments, such as a flea collar worn by pet dogs and cats or on the bridle or protective coat worn by horses, sheep and other livestock. In this connection, the repellent properties of the active constituents of the repellent carrier composition have also been found to repel flies and mosquitoes.

A piece of the insect repellent substrate 10 may also be used as a "night breather" to reduce congestion and aid breathing during sleep. A carrier composition containing 30 mls by volume of citronella, 20 mls by volume of rosemary, 30 mls by volume of eucalyptus and 5 mls by volume of pyrethrum to every litre of wax, has been found particularly effective as a night breather. A piece of the insect repellent substrate approximately 20 cm x 14 cm is placed in the pillowcase or

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under the bottom sheet next to the mattress at the head of the bed. The night breather has also been found to relieve snoring in many cases. In this application, the insect repellent substrate 10 may also act to treat and prevent bed infestations of lice, fleas and dust mite.

Now that a preferred embodiment of the insect repellent substrate has been described in detail, it will be apparent that it has several advantages over the prior art methods of treating headlice, including but not limited to the following advantages:

- (a) it provides immediate treatment as well as long-lasting prevention;
- (b) the naturally occurring repellents employed are less hypo-allergenic and more environmentally friendly than the prior art synthetic compounds;
- (c) the scented or aromatic oils produces a fresh herbal aroma;
- (d) it is relatively simple and inexpensive to manufacture; and,
- (e) it is inconspicuous and can be easily attached to commonly worn headwear by children, who are particularly self-conscious about such things.

Numerous variations and modifications to the described embodiment will suggest themselves to persons skilled in the art, in addition to those already described, without departing from the basic inventive concepts. For example, other types of suitable fabric base material may be employed. All such variations and modifications are to be considered within the scope of the present invention, the nature of which is to be determined from the foregoing description and

the appended claims.

THE CLAIMS DEFINING THE PRESENT INVENTION ARE AS FOLLOWS:

1. An insect repellent substrate for repelling lice and the like insects and for attachment to a garment, the substrate comprising:

5 a strip of fabric base material impregnated with a repellent carrier composition and being adapted to attach to the garment in a manner that will ensure continuous contact of the insect repellent substrate with the wearer's hair or body, the carrier composition including a mixture of wax and
10 an insect repellent whereby, in use, the wearer's body heat causes the carrier composition to soften to provide a controlled release of the insect repellent from the fabric base material.

15 2. An insect repellent substrate as defined in claim 1, wherein the insect repellent is a naturally occurring compound.

3. An insect repellent substrate as defined in claim 2, wherein the insect repellent includes an extract from the pyrethrum flower.

20 4. An insect repellent substrate as defined in claim 3, wherein the insect repellent is a pyrethrum solution.

5. An insect repellent substrate as defined in claim 1, wherein the carrier composition further includes one or more scented or aromatic oils.

25 6. An insect repellent substrate as defined in claim 5, wherein the carrier composition includes citronella oil and rosemary oil, which are also mild insect repellents.

7. An insect repellent substrate as defined in claim 2, wherein the carrier composition further includes neem oil,

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a naturally occurring insect repellent.

8. An insect repellent substrate as defined in claim 1, wherein the wax is a paraffin wax.

9. An insect repellent substrate as defined in claim 4, wherein the carrier composition includes between 0.5% to 6.0% by volume of pyrethrum.

10. An insect repellent substrate as defined in claim 9, wherein the carrier composition includes between 0.5% to 4.0% citronella oil.

11. An insect repellent substrate as defined in claim 10, wherein the carrier composition includes between 0.5% to 5.0% rosemary oil.

12. An insect repellent substrate as defined in claim 11, wherein the carrier composition includes between 3.0% to 9.0% neem oil.

13. An insect repellent substrate as defined in claim 12, wherein the carrier composition also includes between 0.5% to 6.0% eucalyptus oil.

14. An insect repellent substrate as defined in claim 13, wherein the carrier composition includes 30 mls of pyrethrum (50% w/w), 20 mls of citronella, 25 mls of rosemary and 45 mls of neem oil to every one litre of wax.

15. An insect repellent substrate as defined in claim 1, wherein the fabric base material is a felt material.

16. An insect repellent substrate as defined in claim 15, wherein the fabric base material is a polyester/cotton blend felt material.

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17. A method of manufacturing an insect repellent substrate for repelling lice and the like insects for attachment to a garment, the method comprising the steps of:

producing a repellent carrier composition by:

5 heating a wax to a liquid state; and,
mixing an insect repellent with the liquid wax;

10 dipping a strip of fabric base material into the carrier composition whilst still in the liquid state for a sufficient length of time to allow the base material to absorb some of the carrier composition;

allowing the impregnated strip of base material to cool so that the carrier composition solidifies on the base material to form said insect repellent substrate; and,

15 attaching the substrate to the garment in a manner that will ensure continuous contact of the insect repellent substrate with the wearer's hair or body whereby, in use, the wearer's body heat causes the carrier composition to soften to provide a controlled release of the insect repellent from
20 the fabric base material.

18. A method of manufacturing an insect repellent substrate as defined in claim 17, wherein the insect repellent is a naturally occurring compound.

19. A method of manufacturing an insect repellent
25 substrate as defined in claim 18, wherein the insect repellent includes an extract of the pyrethrum flower.

20. A method of manufacturing an insect repellent substrate as defined in claim 19, wherein the insect repellent includes a pyrethrum solution.

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21. A method of manufacturing an insect repellent substrate as defined in claim 17, wherein the step of producing the repellent carrier composition further includes mixing one or more scented or aromatic oils with the liquid wax.

22. A method of manufacturing an insect repellent substrate as defined in claim 21, wherein the scented oils include citronella oil and rosemary oil, which are also mild insect repellents.

23. A method of manufacturing an insect repellent substrate as defined in claim 17, wherein the step of producing the carrier composition further includes mixing neem oil with the liquid wax.

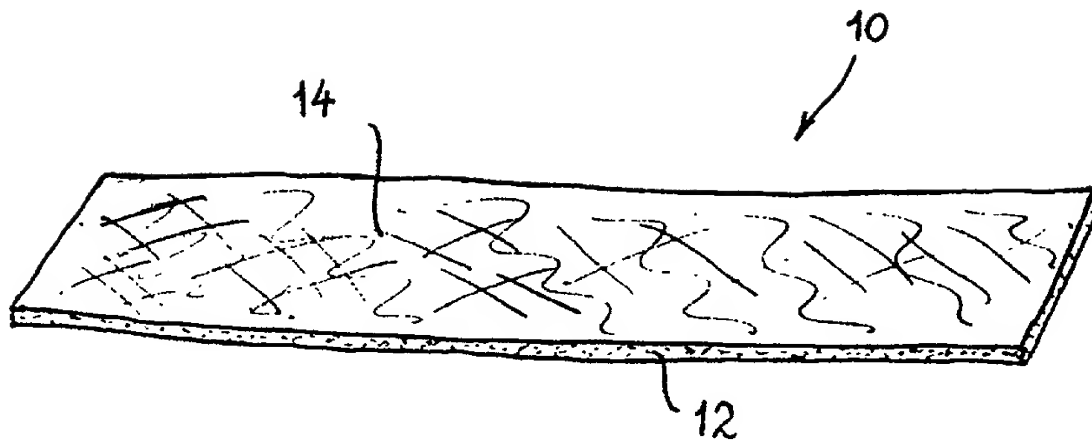
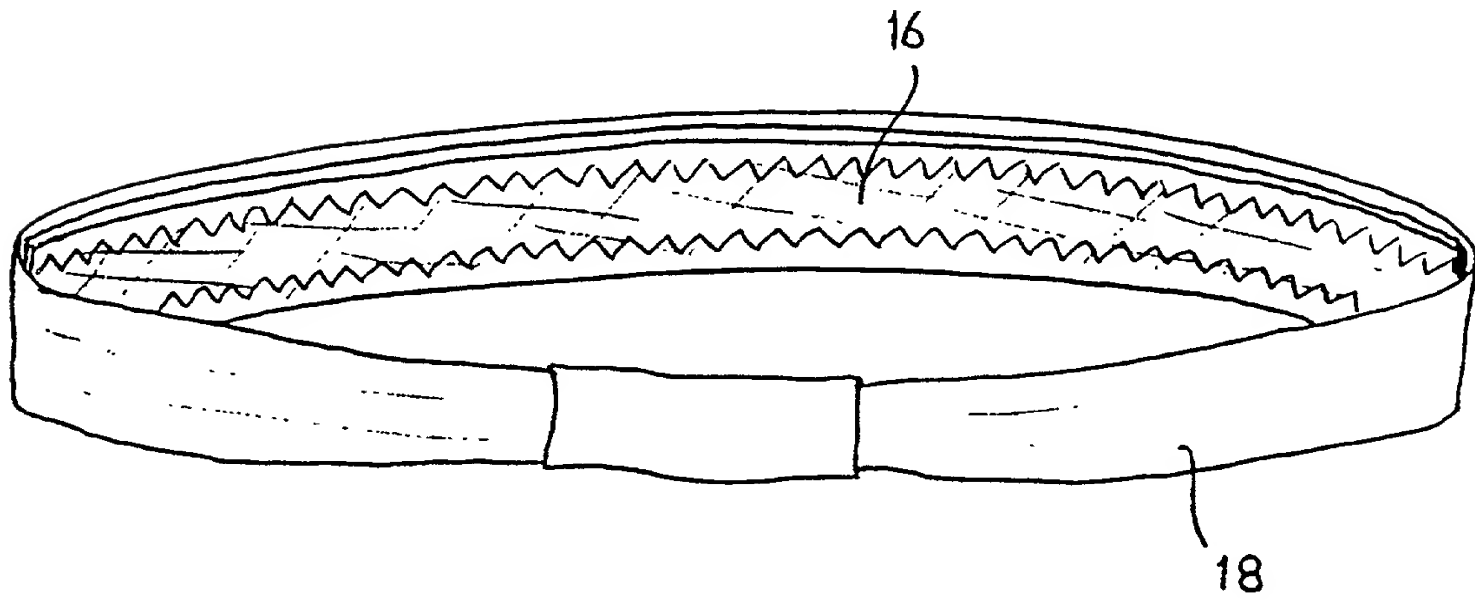
24. An insect repellent substrate as defined in claim 1, wherein the garment is an item of headwear.

25. An insect repellent substrate as defined in claim 24, wherein the garment is a headband and said insect repellent substrate is sewn onto the inside of a stretch fabric forming the headband.

26. An insect repellent substrate as defined in claim 1, wherein the insect repellent substrate is removably attached to the garment using hook and loop fastening material.

27. An insect repellent substrate as defined in claim 26, wherein the garment is a baseball cap.

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*FIG. 1.**FIG. 2.*

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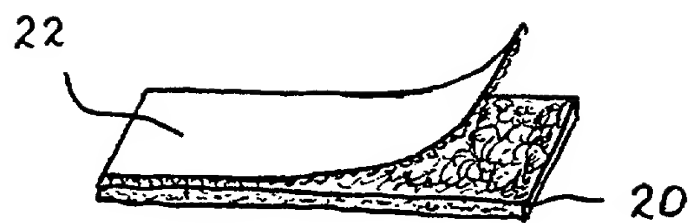


FIG. 3.

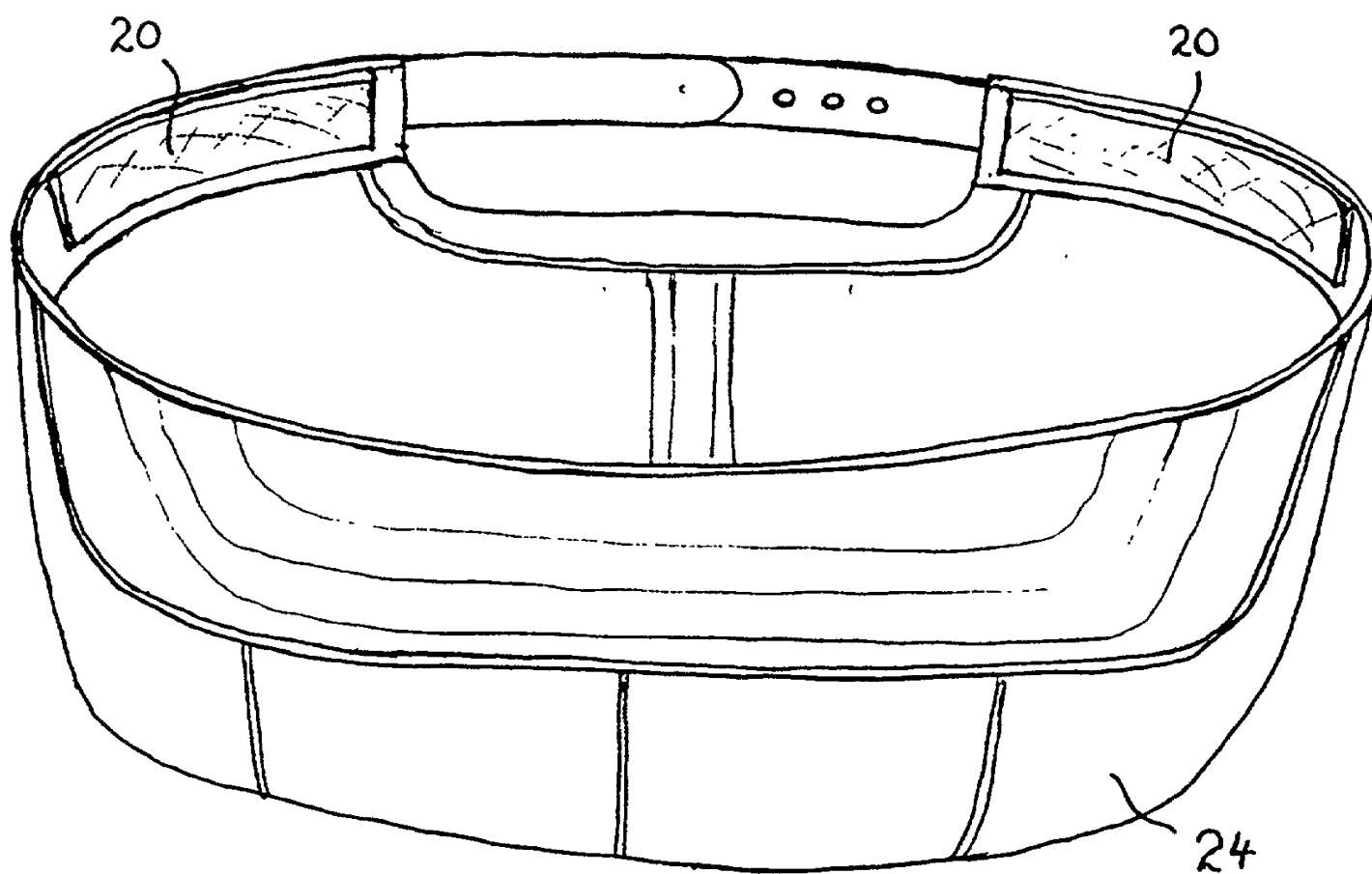


FIG. 4.

09/341299-00010

DECLARATION FOR USA PATENT APPLICATION

(including Design and National Stage PCT)

Attorney's Docket ID:

As a below named inventor, I hereby declare that:

My residence, post office address and citizenship are as stated below adjacent to my name. I believe I am the original, first and sole inventor (if only one name is listed below) or an original, first and joint inventor (if plural names are listed below) of the subject matter which is claimed and for which a patent is sought on the invention

entitled: INSECT REPELLENT SUBSTRATE FOR HEADWEAR

the specification of which:
is attached hereto
(or)

was filed on January 9, 1998 as PCT International Application No. PCT/AU98/00010.

I hereby state that I have reviewed and understand the contents of the above-identified specification, including the claims, as amended by any amendment specifically referred to above. I acknowledge the duty to disclose information which is material to patentability as defined in 37 CFR 1.56.

I hereby claim foreign priority benefits under 35 U.S.C. 119(a)-(d) or 365(b) of any foreign application(s) for patent or inventor's certificate, or 365(a) of any PCT International application which designated at least one country other than the United States of America, listed below and have also identified below, where priority is not claimed, any foreign application for patent or inventor's certificate, or any PCT International application, having a filing date before that of the application on which priority is claimed. (___ ADDITIONAL APPLICATIONS IDENTIFIED ON ATTACHED SHEET)

Prior Foreign Application No.

PO 4502

PO 6268

Country

AU

AU

Day/Month/Year Filed

09 January 1997

17 April 1997

Priority Not Claimed

I hereby claim the benefit under 35 U.S.C. 120 of any U.S. application(s), or 365(c) of any PCT application designating the U.S., listed below; and insofar as the subject matter of each claim of this application is not disclosed in the prior U.S. or PCT application in the manner provided by the first paragraph of 35 U.S.C. 112, I acknowledge the duty to disclose information which is material to patentability as defined in 37 CFR 1.56 which became available between the filing date of the prior application and the national or PCT filing date of this application. (___ ADDITIONAL APPLICATIONS IDENTIFIED ON ATTACHED SHEET.)

U.S. or PCT Parent Application No.

Parent Filing Date (Day/Month/Year)

Parent Patent No. (if applicable)

As a named inventor, I hereby appoint the registered practitioners of **LARSON & TAYLOR** associated with **Customer Number 000881** to prosecute this application and to transact all business in the Patent and Trademark Office connected therewith. Direct all correspondence to that Customer Number.

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I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under 18 U.S.C. 1000 and that such willful false statements may jeopardize the validity of the application or any patent issued thereon.

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